

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/GB2005/050171

International filing date (day/month/year)
30.09.2005

Priority date (day/month/year)
01.10.2004

International Patent Classification (IPC) or both national classification and IPC
G01J5/52

Applicant
BAE SYSTEMS PLC

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☒ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**International application No.
PCT/GB2005/050171

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of:

- ☐ the entire international application,
- ☒ claims Nos. 11,12

because:

- ☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):
- ☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):
- ☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.
- ☒ no international search report has been established for the whole application or for said claims Nos. 11,12
- ☐ the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:
 - the written form ☐ has not been furnished
 - ☐ does not comply with the standard
 - the computer readable form ☐ has not been furnished
 - ☐ does not comply with the standard
- ☐ the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in Annex C-*bis* of the Administrative Instructions.
- ☐ See separate sheet for further details

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/GB2005/050171

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-10
	No: Claims	
Inventive step (IS)	Yes: Claims	1-10
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-10
	No: Claims	

2. Citations and explanations

see separate sheet

Item V

1. Reference is made to the following documents:

D1: EP-A-0859536

2. Claims 11 and 12

The claims 11 and 12 are not in accordance with R. 6.2 and are unclear to such an extent that the ISA considers that no meaningful search can be carried out for these claims (A. 17(2)(a)(ii)). See PCT Guidelines Ch. 5.10 and 5.20.

3. Novelty (A. 33(2) PCT).

3.1 Claim 1

D1 discloses (Fig. 1a and claims 1 and 3) a radiator comprising:

- a substrate ("Silizium-Wafer" 2);
- a metallic layer (layer 5, e.g. Ti).

However, D1 does not disclose that:

- the metallic layer is not carbide-forming; and
- the metallic layer is not interposed between the substrate and an amorphous carbon layer.

Hence, the subject-matter of claim 1 is novel in view of D1.

3.2 Claim 7

The subject-matter of claim 7 relates to a method of making a radiator as in claim 1, although claim 7 is not drafted as dependent on claim 1, and is for the same reason novel.

3.3 Dependent claims

It follows from sections 3.1-3.2 that the subject-matter of claims 2-6, 8, 9 and 10 is novel.

4. Inventive step (A. 33(3) PCT).

4.1 Claim 1.

The present application does not provide any comparison between the present invention and the radiator of D1. Therefore, the objective problem can be considered as the provision of an alternative or modified radiator. There is no suggestion in D1 to introduce an amorphous carbon layer.

It appears known to use non-crystalline forms of carbon (i.e. amorphous carbon, although other terms are often used) as blackbody materials; see e.g. D2, which employs a material termed CBCF. However, the CBCF in D2 is not deposited on a carbide-forming metal, although metals are optionally used as substrates (D2: claims 1, 5 and 8), but then normally on copper (D2, example X), which is not prone to form carbides. Furthermore, D1 already has a good blackbody material, viz. the metallic layer itself, which is formed by colloidal particles. D1 does optionally include titanium carbide (claim 12), but then as protective layer on top of the metallic layer. Hence, it would not be obvious for the skilled person to arrive at the subject-matter of claim 1, which is therefore acknowledged as involving an inventive step.

4.2 Claim 7.

The subject-matter of claim 7 relates to a method of making a radiator as in claim 1, although claim 7 is not drafted as dependent on claim 1, and is for the same reason acknowledged as involving an inventive step.

4.3 It follows from sections 4.1-4.2 that the subject-matter of dependent claims 2-6, 8, 9 and 10 also involves an inventive step.

5. Industrial applicability (A. 33(4) PCT).

The subject-matter of the claims 1-10 is considered as industrially applicable and these claims therefore fulfill the requirements of A. 33(4) PCT.

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AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/GB2005/050171